Enhanced Leak Detection: Where We Are to Date...

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State Water Resources Control Board
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ELD Presentation Outline

- Recent History
- Rationale for New Requirements
- Enhanced Leak Detection (ELD) Overview
- Post-Installation ELD Testing

Recent History

1999 and beyond...

Recent History

- Advisory Panel Report (1999)
- Senate Bill 989 (Stats. 1999, Ch. 812)
  - Study of operating USTs (Field-Based Research) indicated widespread vapor releases, even from double-walled USTs
  - Secondary containment testing showed similar failures
  - And more…

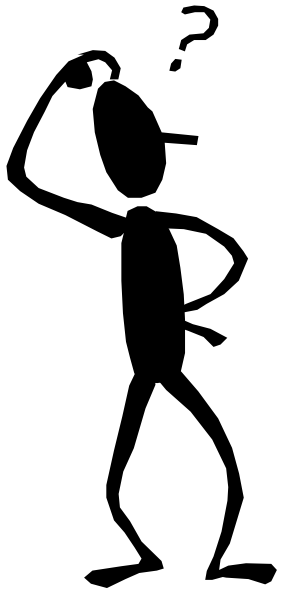
Recent History

- New legislation enacted to address findings (Assembly Bill [AB] 2481: Stats. 2002; Ch. 999)
  - Design and Construction Standards for New USTs Installed On or After July 1, 2003
  - Product-Tight
  - ELD for Double-Walled UST Systems
  - Annual Spill Bucket Testing
  - Red Tag & Administrative Enforcement Authority
  - And more...

Recent History

- AB 1702 (Stats. 2003; Ch. 42) changed the deadline date for vacuum, pressure, or hydrostatic (VPH) continuous monitoring for new USTs
- New regulations requiring training for UST professionals, including UST owner/operator, installers, service technicians, and inspectors

Rationale for New Requirements



Why?

Why require better UST systems?

- Leaks from UST systems continue to be discovered (both liquid and vapor-phase)
- 16,000 active cases in the Cleanup Program
- Legal fees are not reimbursable
- Liability for cleanup stays with you even after you sell the property

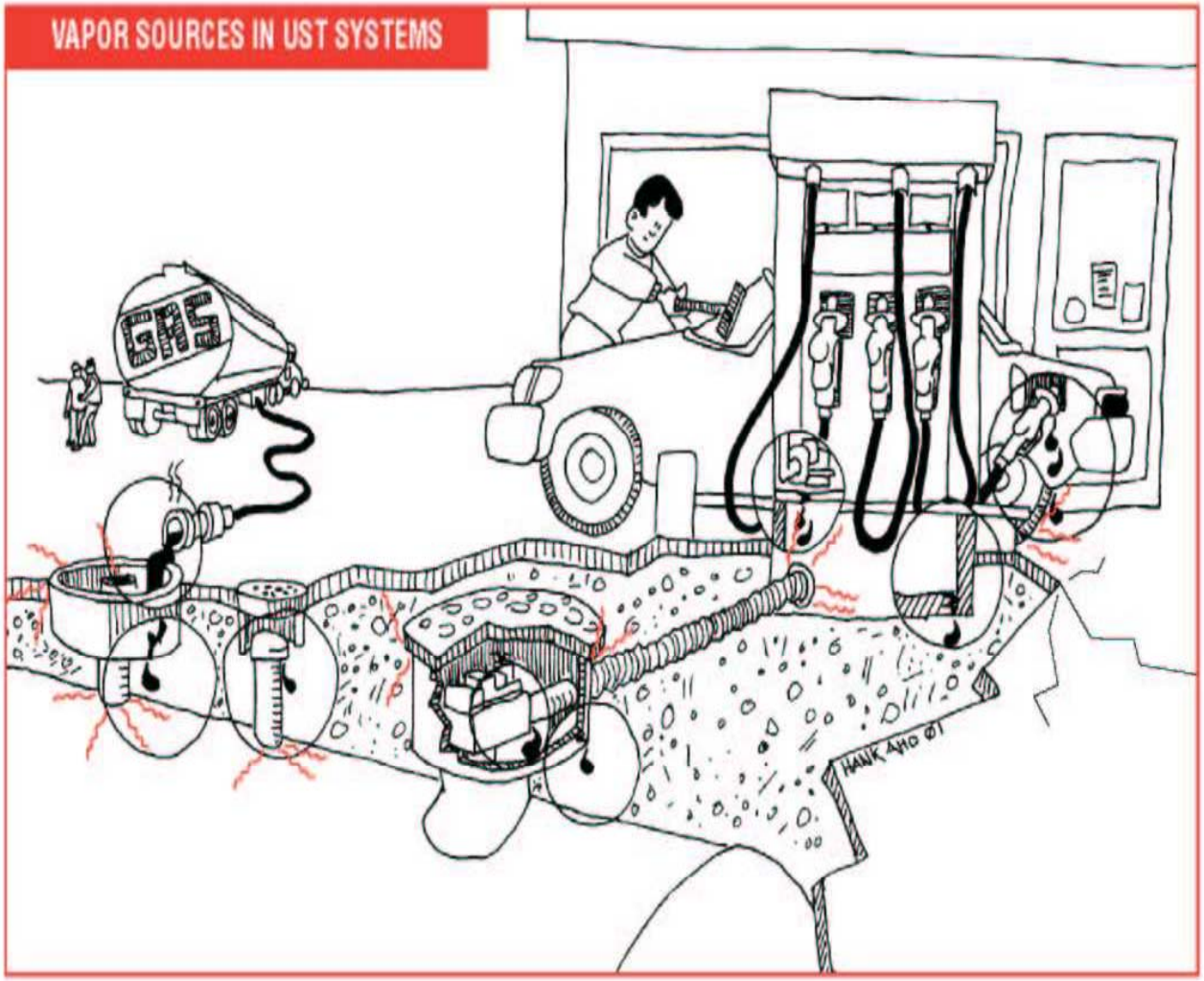
Why require better UST system?

- Cleanup costs continue to rise
  - Total spent by Cleanup Fund for last 5 years, more than $1.2 BILLION
  - Of open/ongoing Cleanup Fund cases, average site cost so far $250K

How are new UST systems better?

- Vapor-tight construction as demonstrated by post-installation ELD testing (one-time snapshot)
  - For new USTs installed on or after July 1, 2003
- VPH methods of continuous monitoring (long-term vapor-tight operation)
  - For new USTs installed on or after July 1, 2004

ELD Overview



"Vapor-Tight"

ELD Requirement Overview: Statutory Authority

- 1999: new law required ELD for existing USTs with a single-walled component located within 1,000 feet of a public drinking water well (every 3 years)
- 2002: new law (AB 2481) extended ELD requirement to existing double-walled USTs (one-time)
- 2002: AB 2481 also required post-installation ELD testing of USTs installed after 7/1/2003 (one-time)

Note: AB 2481 also required new USTs to have vacuum, pressure, or hydrostatic (VPH) continuous monitoring

What is ELD? "Enhanced TracerTight® Test"

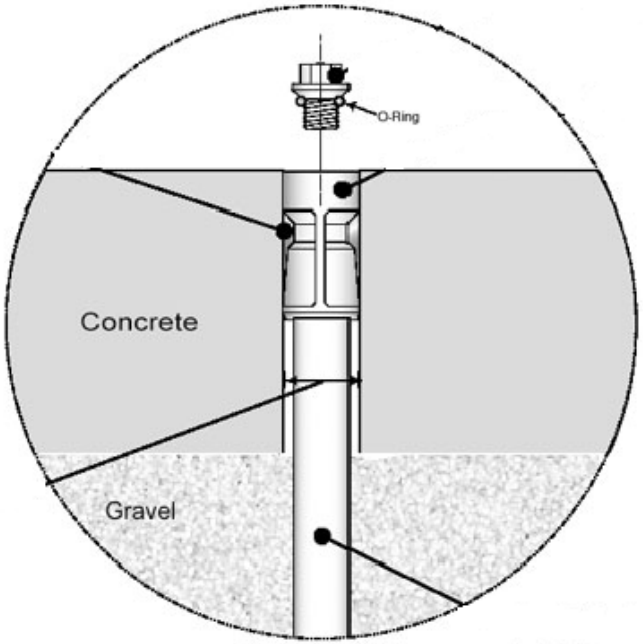
- According to California's regulations, ELD is:
  - A test method that determines integrity of UST system by introduction & external detection of a substance that is not stored in the tank;
  - Third-party certified to detect both vapor & liquid phase releases; and
  - Capable of detecting a leak rate of 0.005 gph with minimum probability of detection of 95% & probability of false alarm no greater than 5%

Comparison of Test Logistics for Existing Vs. New USTs

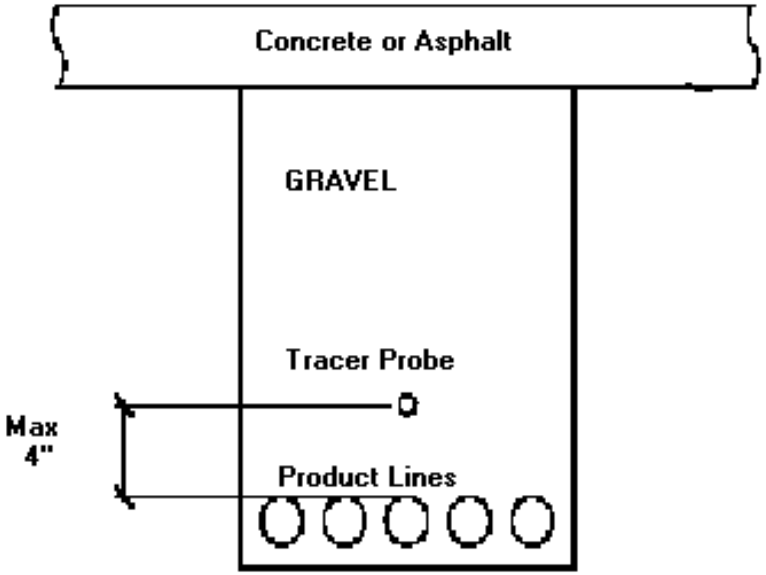
- Existing USTs
  - Located within 1,000 feet of a public drinking water well
  - On-site samples collected up to 14 days after inoculation
  - Wet (Product) Test
- New USTs
  - New USTs installed on or after July 1, 2003, regardless of location
  - Mobile lab used so testing typically may be completed in 2 days
  - Dry (Air) Test

Comparison of Test Logistics for Existing Vs. New USTs

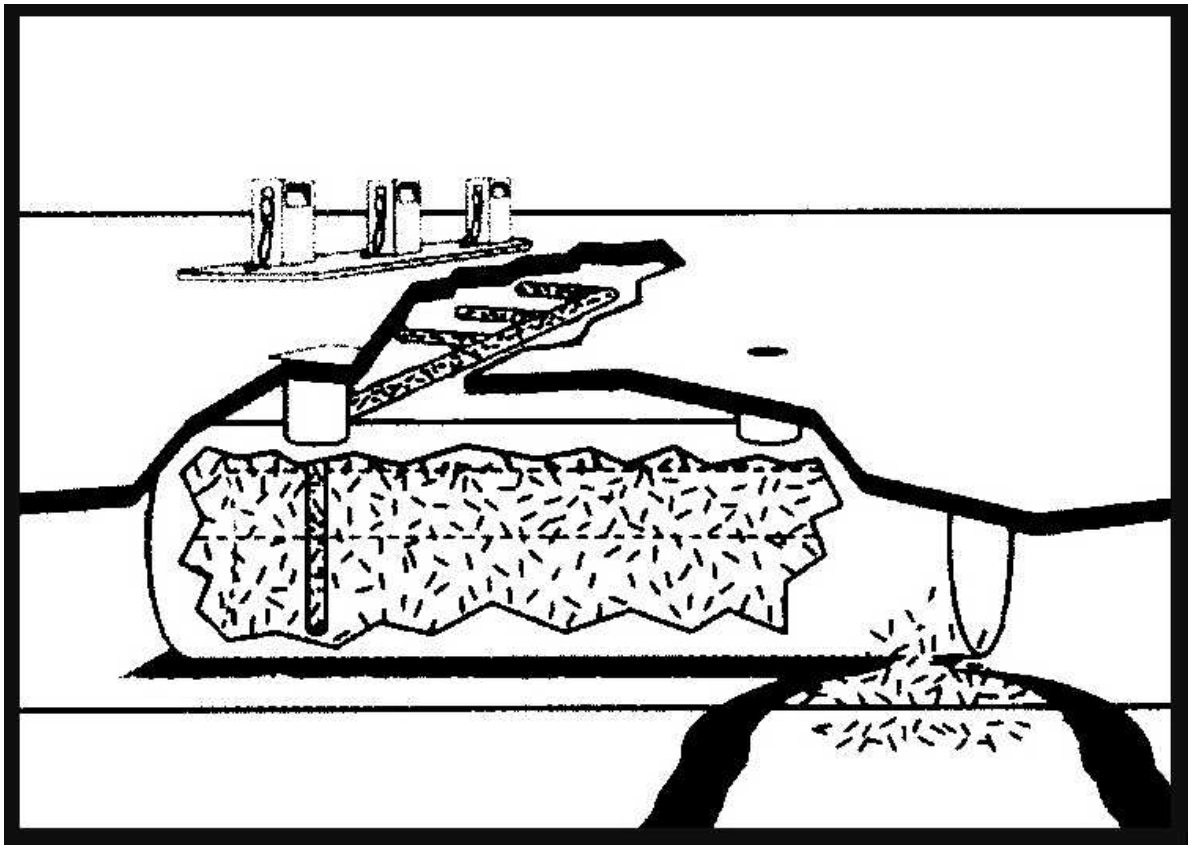
- Existing USTs
  - Vertical probes installed through surface



- New USTs
  - Horizontal probe array installed during construction



Post-Installation ELD Testing



Goal is to prevent leaks in the first place, by requiring tight construction, then continuous monitoring (VPH) that works.

ELD Post-Installation Testing Topics of Discussion

- Requirement and purpose
- Summary of post-installation ELD testing performed to date
- Contractor experience

Post-Installation ELD: Requirement & Purpose

- Requirement: For new USTs installed on or after July 1, 2003
  - Performed after construction is complete (i.e., concrete poured, dispensers set)
- Purpose: Provides one-time "snapshot" of vapor-tight construction

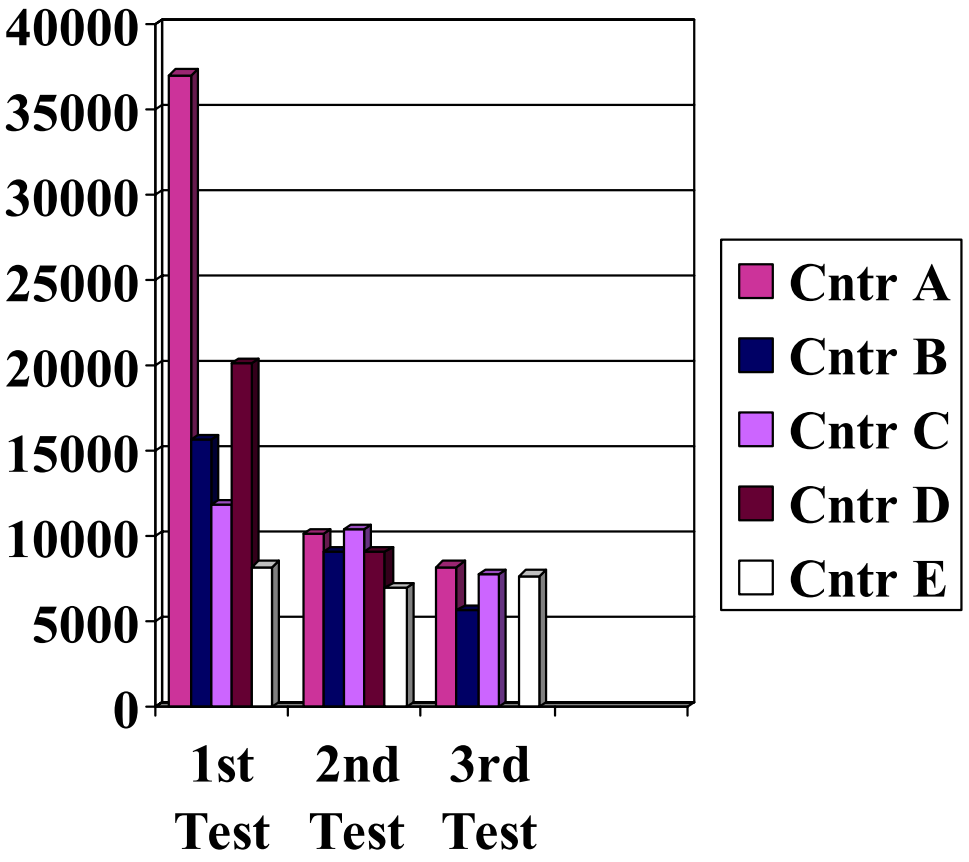
Replaces traditional tank and line tightness testing.

Post-Installation ELD Tests Completed

Month	Facilities Tested by Month	Total Facilities Tested
October 03	4	4
November 03	17	21
December 03	25	46
January 04	37	83
February 04	27	110
March 04	34	144
April 04	26	150
May 04	29	179
June 04	44	223
July 04	41	264
August 04	32	296

Experience Gained by Contractors

- Contractors A, B, C, & D lowered final test costs by assembling facilities with fewer leaks
- Contractor E started well & displays consistent quality
- Good assembly & pretesting saves time & money
- Contractors have option of learning & performing their own pretest



Examples of Improved Practices

- Pipe carried by two people
- Careful maneuvering in pipe trenches to avoid kicking, nicking, or stepping on pipe
- More time taken in construction of UST systems as contractors follow manufacturers installation instructions… word for word
- Better storage (e.g., not in sunlight) & transportation (e.g., prevent abrasion) practices

End Result...

- UST systems are constructed "tighter" to meet the new post-installation testing standard
- California improvements are passed on to other states… nearby and afar

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